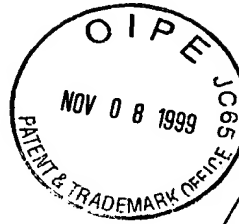


SEQUENCE LISTING

<110> BUMOL, Thomas Frank  
 DOU, Shenshen  
 GLASEBROOK, Andrew Lawrence  
 GOULD, Kenneth Elliot  
 HALE, John Edward  
 HEUER, Josef Georg  
 HUI, Kwan Yuk  
 KHARITONENKOV, Alexei  
 MIZRAHI, Jacques  
 NA, Songqing  
 NOBLITT, Timothy Wayne  
 REIDY, Charles Arthur  
 SONG, Ho Yeong  
 WANG, Jian  
 WU, Xiyang  
 ZUCKERMAN, Steven Harold



<120> THERAPEUTIC APPLICATIONS OF mFLINT POLYPEPTIDES

<130> 040902/0136

<140> US 09/280,567

<141> 1999-03-30

<150> US 60/113,407

<151> 1998-12-22

<150> US 60/112,933

<151> 1998-12-18

<150> US 60/112,703

<151> 1998-12-18

<150> US 60/112,577

<151> 1998-12-17

<150> US 60/099,643

<151> 1998-09-09

<150> US 60/086,074

<151> 1998-05-20

<150> US 60/079,856

<151> 1998-03-30

<160> 13

<170> PatentIn Ver. 2.0

<210> 1

<211> 900

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)...(900)

<400> 1

atg agg gcg ctg gag ggg cca ggc ctg tcg ctg ctg tgc ctg gtg ttg 48  
 Met Arg Ala Leu Glu Gly Pro Gly Leu Ser Leu Leu Cys Leu Val Leu  
 1 5 10 15

gcg ctg cct gcc ctg ctg ccg gtg ccg gct gta cgc gga gtg gca gaa 96  
Ala Leu Pro Ala Leu Leu Pro Val Pro Ala Val Arg Gly Val Ala Glu  
20 25 30

aca ccc acc tac ccc tgg ccg gac gca gag aca ggg gag cgg ctg gtg 144  
Thr Pro Thr Tyr Pro Trp Arg Asp Ala Glu Thr Gly Glu Arg Leu Val  
35 40 45

tgc gcc cag tgc ccc cca ggc acc ttt gtg cag ccg ccg tgc cgc cga 192  
Cys Ala Gln Cys Pro Pro Gly Thr Phe Val Gln Arg Pro Cys Arg Arg  
50 55 60

gac agc ccc acg acg tgt ggc ccg tgt cca ccg cgc cac tac acg cag 240  
Asp Ser Pro Thr Thr Cys Gly Pro Cys Pro Pro Arg His Tyr Thr Gln  
65 70 75 80

ttc tgg aac tac ctg gag cgc tgc cgc tac tgc aac gtc ctc tgc ggg 288  
Phe Trp Asn Tyr Leu Glu Arg Cys Arg Tyr Cys Asn Val Leu Cys Gly  
85 90 95

gag cgt gag gag gag gca ccg gct tgc cac gcc acc cac aac cgt gcc 336  
Glu Arg Glu Glu Glu Ala Arg Ala Cys His Ala Thr His Asn Arg Ala  
100 105 110

tgc cgc tgc cgc acc ggc ttc ttc gcg cac gct ggt ttc tgc ttg gag 384  
Cys Arg Cys Arg Thr Gly Phe Phe Ala His Ala Gly Phe Cys Leu Glu  
115 120 125

cac gca tcg tgt cca cct ggt gcc gcc gtg att gcc ccg gcc acc ccc 432  
His Ala Ser Cys Pro Pro Gly Ala Gly Val Ile Ala Pro Gly Thr Pro  
130 135 140

agc cag aac acg cag tgc cag ccg tgc ccc cca gcc acc ttc tca gcc 480  
Ser Gln Asn Thr Gln Cys Gln Pro Cys Pro Pro Gly Thr Phe Ser Ala  
145 150 155 160

agc agc tcc agc tca gag cag tgc cag ccc cac cgc aac tgc acg gcc 528  
Ser Ser Ser Ser Ser Glu Gln Cys Gln Pro His Arg Asn Cys Thr Ala  
165 170 175

ctg gcc ctg gcc ctc aat gtg cca gcc tct tcc tcc cat gac acc ctg 576  
Leu Gly Leu Ala Leu Asn Val Pro Gly Ser Ser Ser His Asp Thr Leu  
180 185 190

tgc acc agc tgc act ggc ttc ccc ctc agc acc agg gta cca gga gct 624  
Cys Thr Ser Cys Thr Gly Phe Pro Leu Ser Thr Arg Val Pro Gly Ala  
195 200 205

gag gag tgt gag cgt gcc gtc atc gac ttt gtg gct ttc cag gac atc 672  
Glu Glu Cys Glu Arg Ala Val Ile Asp Phe Val Ala Phe Gln Asp Ile  
210 215 220

tcc atc aag agg ctg cag ccg ctg ctg cag gcc ctc gag gcc ccg gag 720  
Ser Ile Lys Arg Leu Gln Arg Leu Leu Gln Ala Leu Glu Ala Pro Glu  
225 230 235 240

ggc tgg ggt ccg aca cca agg gcg ggc cgc gcg gcc ttg cag ctg aag 768  
Gly Trp Gly Pro Thr Pro Arg Ala Gly Arg Ala Ala Leu Gln Leu Lys  
245 250 255

ctg cgt ccg ccg ctc acg gag ctc ctg ggg gcg cag gac ggg gcg ctg 816  
Leu Arg Arg Arg Leu Thr Glu Leu Leu Gly Ala Gln Asp Gly Ala Leu  
260 265 270

ctg gtg cgg ctg ctg cag gcg ctg cgc gtg gcc agg atg ccc ggg ctg 864  
 Leu Val Arg Leu Leu Gln Ala Leu Arg Val Ala Arg Met Pro Gly Leu  
 275 280 285

gag cgg agc gtc cgt gag cgc ttc ctc cct gtg cac 900  
 Glu Arg Ser Val Arg Glu Arg Phe Leu Pro Val His  
 290 295 300

<210> 2  
 <211> 300  
 <212> PRT  
 <213> Homo sapiens

<400> 2  
 Met Arg Ala Leu Glu Gly Pro Gly Leu Ser Leu Leu Cys Leu Val Leu  
 1 5 10 15  
 Ala Leu Pro Ala Leu Leu Pro Val Pro Ala Val Arg Gly Val Ala Glu  
 20 25 30  
 Thr Pro Thr Tyr Pro Trp Arg Asp Ala Glu Thr Gly Glu Arg Leu Val  
 35 40 45  
 Cys Ala Gln Cys Pro Pro Gly Thr Phe Val Gln Arg Pro Cys Arg Arg  
 50 55 60  
 Asp Ser Pro Thr Thr Cys Gly Pro Cys Pro Pro Arg His Tyr Thr Gln  
 65 70 75 80  
 Phe Trp Asn Tyr Leu Glu Arg Cys Arg Tyr Cys Asn Val Leu Cys Gly  
 85 90 95  
 Glu Arg Glu Glu Glu Ala Arg Ala Cys His Ala Thr His Asn Arg Ala  
 100 105 110  
 Cys Arg Cys Arg Thr Gly Phe Phe Ala His Ala Gly Phe Cys Leu Glu  
 115 120 125  
 His Ala Ser Cys Pro Pro Gly Ala Gly Val Ile Ala Pro Gly Thr Pro  
 130 135 140  
 Ser Gln Asn Thr Gln Cys Gln Pro Cys Pro Pro Gly Thr Phe Ser Ala  
 145 150 155 160  
 Ser Ser Ser Ser Ser Glu Gln Cys Gln Pro His Arg Asn Cys Thr Ala  
 165 170 175  
 Leu Gly Leu Ala Leu Asn Val Pro Gly Ser Ser Ser His Asp Thr Leu  
 180 185 190  
 Cys Thr Ser Cys Thr Gly Phe Pro Leu Ser Thr Arg Val Pro Gly Ala  
 195 200 205  
 Glu Glu Cys Glu Arg Ala Val Ile Asp Phe Val Ala Phe Gln Asp Ile  
 210 215 220  
 Ser Ile Lys Arg Leu Gln Arg Leu Leu Gln Ala Leu Glu Ala Pro Glu  
 225 230 235 240  
 Gly Trp Gly Pro Thr Pro Arg Ala Gly Arg Ala Ala Leu Gln Leu Lys  
 245 250 255

Leu Arg Arg Arg Leu Thr Glu Leu Leu Gly Ala Gln Asp Gly Ala Leu  
260 265 270

Leu Val Arg Leu Leu Gln Ala Leu Arg Val Ala Arg Met Pro Gly Leu  
275 280 285

Glu Arg Ser Val Arg Glu Arg Phe Leu Pro Val His  
290 295 300

<210> 3  
<211> 936  
<212> DNA  
<213> Homo sapiens

<220>  
<221> CDS  
<222> (25)..(924)

<400> 3  
gctctccctg ctccagcaag gacc atg agg gcg ctg gag ggg cca ggc ctg 51  
Met Arg Ala Leu Glu Gly Pro Gly Leu  
1 5

tcg ctg ctg tgc ctg gtg ttg gcg ctg cct gcc ctg ctg ccg gtg ccg 99  
Ser Leu Leu Cys Leu Val Leu Ala Leu Pro Ala Leu Leu Pro Val Pro  
10 15 20 25

gct gta cgc gga gtg gca gaa aca ccc acc tac ccc tgg cgg gac gca 147  
Ala Val Arg Gly Val Ala Glu Thr Pro Thr Tyr Pro Trp Arg Asp Ala  
30 35 40

gag aca ggg gag cgg ctg gtg tgc gcc cag tgc ccc cca ggc acc ttt 195  
Glu Thr Gly Glu Arg Leu Val Cys Ala Gln Cys Pro Pro Gly Thr Phe  
45 50 55

gtg cag cgg ccg tgc cgc cga gac agc ccc acg acg tgt ggc ccg tgt 243  
Val Gln Arg Pro Cys Arg Arg Asp Ser Pro Thr Thr Cys Gly Pro Cys  
60 65 70

cca ccg cgc cac tac acg cag ttc tgg aac tac ctg gag cgc tgc cgc 291  
Pro Pro Arg His Tyr Thr Gln Phe Trp Asn Tyr Leu Glu Arg Cys Arg  
75 80 85

tac tgc aac gtc ctc tgc ggg gag cgt gag gag gag gca cgg gct tgc 339  
Tyr Cys Asn Val Leu Cys Gly Glu Arg Glu Glu Glu Ala Arg Ala Cys  
90 95 100 105

cac gcc acc cac aac cgt gcc tgc cgc tgc cgc acc ggc ttc ttc gcg 387  
His Ala Thr His Asn Arg Ala Cys Arg Cys Arg Thr Gly Phe Phe Ala  
110 115 120

cac gct ggt ttc tgc ttg gag cac gca tcg tgt cca cct ggt gcc ggc 435  
His Ala Gly Phe Cys Leu Glu His Ala Ser Cys Pro Pro Gly Ala Gly  
125 130 135

gtg att gcc ccg ggc acc ccc agc cag aac acg cag tgc cag ccg tgc 483  
Val Ile Ala Pro Gly Thr Pro Ser Gln Asn Thr Gln Cys Gln Pro Cys  
140 145 150

ccc cca ggc acc ttc tca gcc agc agc tcc agc tca gag cag tgc cag 531  
Pro Pro Gly Thr Phe Ser Ala Ser Ser Ser Ser Glu Gln Cys Gln  
155 160 165

ccc cac cgc aac tgc acg gcc ctg ggc ctg gcc ctc att gtg cca ggc 579  
Pro His Arg Asn Cys Thr Ala Leu Gly Leu Ala Leu Ile Val Pro Gly  
170 175 180 185

tct tcc tcc cat gac acc ctg tgc acc agc tgc act ggc ttc ccc ctc 627  
Ser Ser Ser His Asp Thr Leu Cys Thr Ser Cys Thr Gly Phe Pro Leu  
190 195 200

agc acc agg gta cca gga gct gag gag tgt gag cgt gcc gtc atc gac 675  
Ser Thr Arg Val Pro Gly Ala Glu Glu Cys Glu Arg Ala Val Ile Asp  
205 210 215

ttt gtg gct ttc cag gac atc tcc atc aag agg ctg cag cgg ctg ctg 723  
Phe Val Ala Phe Gln Asp Ile Ser Ile Lys Arg Leu Gln Arg Leu Leu  
220 225 230

cag gcc ctc gag gcc ccg gag ggc tgg gct ccg aca cca agg gcg ggc 771  
Gln Ala Leu Glu Ala Pro Glu Gly Trp Ala Pro Thr Pro Arg Ala Gly  
235 240 245

cgc gcg gcc ttg cag ctg aag ctg cgt cgg cgg ctc acg gag ctc ctg 819  
Arg Ala Ala Leu Gln Leu Lys Leu Arg Arg Arg Leu Thr Glu Leu Leu  
250 255 260 265

ggg gcg cag gac ggg gcg ctg ctg gtg cgg ctg ctg cag gcg ctg cgc 867  
Gly Ala Gln Asp Gly Ala Leu Leu Val Arg Leu Leu Gln Ala Leu Arg  
270 275 280

gtg gcc agg atg ccc ggg ctg gag cgg agc gtc cgt gag cgc ttc ctc 915  
Val Ala Arg Met Pro Gly Leu Glu Arg Ser Val Arg Glu Arg Phe Leu  
285 290 295

cct gtg cac tgatcctggc cc 936  
Pro Val His  
300

<210> 4  
<211> 300  
<212> PRT  
<213> Homo sapiens

<400> 4  
Met Arg Ala Leu Glu Gly Pro Gly Leu Ser Leu Leu Cys Leu Val Leu  
1 5 10 15

Ala Leu Pro Ala Leu Leu Pro Val Pro Ala Val Arg Gly Val Ala Glu  
20 25 30

Thr Pro Thr Tyr Pro Trp Arg Asp Ala Glu Thr Gly Glu Arg Leu Val  
35 40 45

Cys Ala Gln Cys Pro Pro Gly Thr Phe Val Gln Arg Pro Cys Arg Arg  
50 55 60

Asp Ser Pro Thr Thr Cys Gly Pro Cys Pro Pro Arg His Tyr Thr Gln  
65 70 75 80

Phe Trp Asn Tyr Leu Glu Arg Cys Arg Tyr Cys Asn Val Leu Cys Gly  
85 90 95

Glu Arg Glu Glu Glu Ala Arg Ala Cys His Ala Thr His Asn Arg Ala  
100 105 110

Cys Arg Cys Arg Thr Gly Phe Phe Ala His Ala Gly Phe Cys Leu Glu  
 115 120 125  
 His Ala Ser Cys Pro Pro Gly Ala Gly Val Ile Ala Pro Gly Thr Pro  
 130 135 140  
 Ser Gln Asn Thr Gln Cys Gln Pro Cys Pro Pro Gly Thr Phe Ser Ala  
 145 150 155 160  
 Ser Ser Ser Ser Ser Glu Gln Cys Gln Pro His Arg Asn Cys Thr Ala  
 165 170 175  
 Leu Gly Leu Ala Leu Ile Val Pro Gly Ser Ser Ser His Asp Thr Leu  
 180 185 190  
 Cys Thr Ser Cys Thr Gly Phe Pro Leu Ser Thr Arg Val Pro Gly Ala  
 195 200 205  
 Glu Glu Cys Glu Arg Ala Val Ile Asp Phe Val Ala Phe Gln Asp Ile  
 210 215 220  
 Ser Ile Lys Arg Leu Gln Arg Leu Leu Gln Ala Leu Glu Ala Pro Glu  
 225 230 235 240  
 Gly Trp Ala Pro Thr Pro Arg Ala Gly Arg Ala Ala Leu Gln Leu Lys  
 245 250 255  
 Leu Arg Arg Arg Leu Thr Glu Leu Leu Gly Ala Gln Asp Gly Ala Leu  
 260 265 270  
 Leu Val Arg Leu Leu Gln Ala Leu Arg Val Ala Arg Met Pro Gly Leu  
 275 280 285  
 Glu Arg Ser Val Arg Glu Arg Phe Leu Pro Val His  
 290 295 300

<210> 5  
 <211> 813  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1) .. (813)

<400> 5  
 gtg gca gaa aca ccc acc tac ccc tgg cgg gac gca gag aca ggg gag 48  
 Val Ala Glu Thr Pro Thr Tyr Pro Trp Arg Asp Ala Glu Thr Gly Glu  
 1 5 10 15  
 cgg ctg gtg tgc gcc cag tgc ccc cca ggc acc ttt gtg cag cgg ccg 96  
 Arg Leu Val Cys Ala Gln Cys Pro Pro Gly Thr Phe Val Gln Arg Pro  
 20 25 30  
 tgc cgc cga gac agc ccc acg acg tgt ggc ccg tgt cca ccg cgc cac 144  
 Cys Arg Arg Asp Ser Pro Thr Thr Cys Gly Pro Cys Pro Pro Arg His  
 35 40 45  
 tac acg cag ttc tgg aac tac ctg gag cgc tgc cgc tac tgc aac gtc 192  
 Tyr Thr Gln Phe Trp Asn Tyr Leu Glu Arg Cys Arg Tyr Cys Asn Val  
 50 55 60

ctc tgc ggg gag cgt gag gag gag gca cgg gct tgc cac gcc acc cac 240  
 Leu Cys Gly Glu Arg Glu Glu Glu Ala Arg Ala Cys His Ala Thr His  
 65 70 75 80

aac cgt gcc tgc cgc tgc cgc acc ggc ttc ttc gcg cac gct ggt ttc 288  
 Asn Arg Ala Cys Arg Cys Arg Thr Gly Phe Phe Ala His Ala Gly Phe  
 85 90 95

tgc ttg gag cac gca tgc tgt cca cct ggt gcc ggc gtg att gcc ccg 336  
 Cys Leu Glu His Ala Ser Cys Pro Pro Gly Ala Gly Val Ile Ala Pro  
 100 105 110

ggc acc ccc agc cag aac acg cag tgc cag ccg tgc ccc cca ggc acc 384  
 Gly Thr Pro Ser Gln Asn Thr Gln Cys Gln Pro Cys Pro Pro Gly Thr  
 115 120 125

ttc tca gcc agc agc tcc agc tca gag cag tgc cag ccc cac cgc aac 432  
 Phe Ser Ala Ser Ser Ser Ser Ser Glu Gln Cys Gln Pro His Arg Asn  
 130 135 140

tgc acg gcc ctg ggc ctg gcc ctc aat gtg cca ggc tct tcc tcc cat 480  
 Cys Thr Ala Leu Gly Leu Ala Leu Asn Val Pro Gly Ser Ser Ser His  
 145 150 155 160

gac acc ctg tgc acc agc tgc act ggc ttc ccc ctc agc acc agg gta 528  
 Asp Thr Leu Cys Thr Ser Cys Thr Gly Phe Pro Leu Ser Thr Arg Val  
 165 170 175

cca gga gct gag gag tgt gag cgt gcc gtc atc gac ttt gtg gct ttc 576  
 Pro Gly Ala Glu Glu Cys Glu Arg Ala Val Ile Asp Phe Val Ala Phe  
 180 185 190

cag gac atc tcc atc aag agg ctg cag cgg ctg ctg cag gcc ctc gag 624  
 Gln Asp Ile Ser Ile Lys Arg Leu Gln Arg Leu Leu Gln Ala Leu Glu  
 195 200 205

gcc ccg gag ggc tgg ggt ccg aca cca agg gcg ggc cgc gcg gcc ttg 672  
 Ala Pro Glu Gly Trp Gly Pro Thr Pro Arg Ala Gly Arg Ala Ala Leu  
 210 215 220

cag ctg aag ctg cgt cgg cgg ctc acg gag ctc ctg ggg gcg cag gac 720  
 Gln Leu Lys Leu Arg Arg Arg Leu Thr Glu Leu Leu Gly Ala Gln Asp  
 225 230 235 240

ggg gcg ctg ctg gtg cgg ctg ctg cag gcg ctg cgc gtg gcc agg atg 768  
 Gly Ala Leu Leu Val Arg Leu Leu Gln Ala Leu Arg Val Ala Arg Met  
 245 250 255

ccc ggg ctg gag cgg agc gtc cgt gag cgc ttc ctc cct gtg cac 813  
 Pro Gly Leu Glu Arg Ser Val Arg Glu Arg Phe Leu Pro Val His  
 260 265 270

<210> 6  
 <211> 271  
 <212> PRT  
 <213> Homo sapiens

<400> 6  
 Val Ala Glu Thr Pro Thr Tyr Pro Trp Arg Asp Ala Glu Thr Gly Glu  
 1 5 10 15

Arg Leu Val Cys Ala Gln Cys Pro Pro Gly Thr Phe Val Gln Arg Pro  
 20 25 30

Cys Arg Arg Asp Ser Pro Thr Thr Cys Gly Pro Cys Pro Pro Arg His  
 35 40 45  
 Tyr Thr Gln Phe Trp Asn Tyr Leu Glu Arg Cys Arg Tyr Cys Asn Val  
 50 55 60  
 Leu Cys Gly Glu Arg Glu Glu Glu Ala Arg Ala Cys His Ala Thr His  
 65 70 75 80  
 Asn Arg Ala Cys Arg Cys Arg Thr Gly Phe Phe Ala His Ala Gly Phe  
 85 90 95  
 Cys Leu Glu His Ala Ser Cys Pro Pro Gly Ala Gly Val Ile Ala Pro  
 100 105 110  
 Gly Thr Pro Ser Gln Asn Thr Gln Cys Gln Pro Cys Pro Pro Gly Thr  
 115 120 125  
 Phe Ser Ala Ser Ser Ser Ser Ser Glu Gln Cys Gln Pro His Arg Asn  
 130 135 140  
 Cys Thr Ala Leu Gly Leu Ala Leu Asn Val Pro Gly Ser Ser Ser His  
 145 150 155 160  
 Asp Thr Leu Cys Thr Ser Cys Thr Gly Phe Pro Leu Ser Thr Arg Val  
 165 170 175  
 Pro Gly Ala Glu Glu Cys Glu Arg Ala Val Ile Asp Phe Val Ala Phe  
 180 185 190  
 Gln Asp Ile Ser Ile Lys Arg Leu Gln Arg Leu Leu Gln Ala Leu Glu  
 195 200 205  
 Ala Pro Glu Gly Trp Gly Pro Thr Pro Arg Ala Gly Arg Ala Ala Leu  
 210 215 220  
 Gln Leu Lys Leu Arg Arg Arg Leu Thr Glu Leu Leu Gly Ala Gln Asp  
 225 230 235 240  
 Gly Ala Leu Leu Val Arg Leu Leu Gln Ala Leu Arg Val Ala Arg Met  
 245 250 255  
 Pro Gly Leu Glu Arg Ser Val Arg Glu Arg Phe Leu Pro Val His  
 260 265 270

<210> 7  
 <211> 825  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)..(813)

<400> 7  
 gtg gca gaa aca ccc acc tac ccc tgg cgg gac gca gag aca ggg gag 48  
 Val Ala Glu Thr Pro Thr Tyr Pro Trp Arg Asp Ala Glu Thr Gly Glu  
 1 5 10 15  
 cgg ctg gtg tgc gcc cag tgc ccc cca ggc acc ttt gtg cag cgg ccg 96  
 Arg Leu Val Cys Ala Gln Cys Pro Pro Gly Thr Phe Val Gln Arg Pro  
 20 25 30



tgc cgc cga gac agc ccc acg acg tgt ggc ccg tgt cca ccg cgc cac 144  
 Cys Arg Arg Asp Ser Pro Thr Thr Cys Gly Pro Cys Pro Pro Arg His  
 35 40 45  
 tac acg cag ttc tgg aac tac ctg gag cgc tgc cgc tac tgc aac gtc 192  
 Tyr Thr Gln Phe Trp Asn Tyr Leu Glu Arg Cys Arg Tyr Cys Asn Val  
 50 55 60  
 ctc tgc ggg gag cgt gag gag gag gca cgg gct tgc cac gcc acc cac 240  
 Leu Cys Gly Glu Arg Glu Glu Glu Ala Arg Ala Cys His Ala Thr His  
 65 70 75 80  
 aac cgt gcc tgc cgc tgc cgc acc ggc ttc ttc gcg cac gct ggt ttc 288  
 Asn Arg Ala Cys Arg Cys Arg Thr Gly Phe Phe Ala His Ala Gly Phe  
 85 90 95  
 tgc ttg gag cac gca tgc tgt cca cct ggt gcc gcc gtg att gcc ccg 336  
 Cys Leu Glu His Ala Ser Cys Pro Pro Gly Ala Gly Val Ile Ala Pro  
 100 105 110  
 ggc acc ccc agc cag aac acg cag tgc cag ccg tgc ccc cca gcc acc 384  
 Gly Thr Pro Ser Gln Asn Thr Gln Cys Gln Pro Cys Pro Pro Gly Thr  
 115 120 125  
 ttc tca gcc agc agc tcc agc tca gag cag tgc cag ccc cac cgc aac 432  
 Phe Ser Ala Ser Ser Ser Ser Ser Ser Glu Gln Cys Gln Pro His Arg Asn  
 130 135 140  
 tgc acg gcc ctg ggc ctg gcc ctc aat gtg cca gcc tct tcc tcc cat 480  
 Cys Thr Ala Leu Gly Leu Ala Leu Asn Val Pro Gly Ser Ser Ser His  
 145 150 155 160  
 gac acc ctg tgc acc agc tgc act ggc ttc ccc ctc agc acc agg gta 528  
 Asp Thr Leu Cys Thr Ser Cys Thr Gly Phe Pro Leu Ser Thr Arg Val  
 165 170 175  
 cca gga gct gag gag tgt gag cgt gcc gtc atc gac ttt gtg gct ttc 576  
 Pro Gly Ala Glu Glu Cys Glu Arg Ala Val Ile Asp Phe Val Ala Phe  
 180 185 190  
 cag gac atc tcc atc aag agg ctg cag ccg ctg ctg cag gcc ctc gag 624  
 Gln Asp Ile Ser Ile Lys Arg Leu Gln Arg Leu Leu Gln Ala Leu Glu  
 195 200 205  
 gcc ccg gag ggc tgg gct ccg aca cca agg gcg gcc cgc gcg gcc ttg 672  
 Ala Pro Glu Gly Trp Ala Pro Thr Pro Arg Ala Gly Arg Ala Ala Leu  
 210 215 220  
 cag ctg aag ctg cgt ccg ccg ctc acg gag ctc ctg ggg gcg cag gac 720  
 Gln Leu Lys Leu Arg Arg Arg Leu Thr Glu Leu Gly Ala Gln Asp  
 225 230 235 240  
 ggg gcg ctg ctg gtg ccg ctg ctg cag gcg ctg cgc gtg gcc agg atg 768  
 Gly Ala Leu Leu Val Arg Leu Leu Gln Ala Leu Arg Val Ala Arg Met  
 245 250 255  
 gcc ggg ctg gag ccg agc gtc cgt gag cgc ttc ctc cct gtg cac 813  
 Pro Gly Leu Glu Arg Ser Val Arg Glu Arg Phe Leu Pro Val His  
 260 265 270  
 tgatcctggc cc 825

Sub  
B1

<210> 8  
<211> 271  
<212> PRT  
<213> Homo sapiens

<400> 8

Val Ala Glu Thr Pro Thr Tyr Pro Trp Arg Asp Ala Glu Thr Gly Glu  
1 5 10 15  
Arg Leu Val Cys Ala Gln Cys Pro Pro Gly Thr Phe Val Gln Arg Pro  
20 25 30  
Cys Arg Arg Asp Ser Pro Thr Thr Cys Gly Pro Cys Pro Pro Arg His  
35 40 45  
Tyr Thr Gln Phe Trp Asn Tyr Leu Glu Arg Cys Arg Tyr Cys Asn Val  
50 55 60  
Leu Cys Gly Glu Arg Glu Glu Glu Ala Arg Ala Cys His Ala Thr His  
65 70 75 80  
Asn Arg Ala Cys Arg Cys Arg Thr Gly Phe Phe Ala His Ala Gly Phe  
85 90 95  
Cys Leu Glu His Ala Ser Cys Pro Pro Gly Ala Gly Val Ile Ala Pro  
100 105 110  
Gly Thr Pro Ser Gln Asn Thr Gln Cys Gln Pro Cys Pro Pro Gly Thr  
115 120 125  
Phe Ser Ala Ser Ser Ser Ser Ser Glu Gln Cys Gln Pro His Arg Asn  
130 135 140  
Cys Thr Ala Leu Gly Leu Ala Leu Asn Val Pro Gly Ser Ser Ser His  
145 150 155 160  
Asp Thr Leu Cys Thr Ser Cys Thr Gly Phe Pro Leu Ser Thr Arg Val  
165 170 175  
Pro Gly Ala Glu Glu Cys Glu Arg Ala Val Ile Asp Phe Val Ala Phe  
180 185 190  
Gln Asp Ile Ser Ile Lys Arg Leu Gln Arg Leu Leu Gln Ala Leu Glu  
195 200 205  
Ala Pro Glu Gly Trp Ala Pro Thr Pro Arg Ala Gly Arg Ala Ala Leu  
210 215 220  
Gln Leu Lys Leu Arg Arg Arg Leu Thr Glu Leu Leu Gly Ala Gln Asp  
225 230 235 240  
Gly Ala Leu Leu Val Arg Leu Leu Gln Ala Leu Arg Val Ala Arg Met  
245 250 255  
Pro Gly Leu Glu Arg Ser Val Arg Glu Arg Phe Leu Pro Val His  
260 265 270

<210> 9  
<211> 8  
<212> PRT  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Polypeptide

<400> 9

Asp Tyr Lys Asp Asp Asp Lys  
1 5

<210> 10

<211> 59

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 10

tagggctgat caaggatggg cttctggact tgggcggccc ctccgcaggc ggaccgggg 59

<210> 11

<211> 66

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 11

aggggggcgg ccgctgatca tcaactgtcg tcgtcgtcct tgtagtcgtg cacagggagg 60

aagcgc

66

<210> 12

<211> 37

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 12

gaagatcttc tttgatcaag gatgggcttc tggactt

37

<210> 13

<211> 37

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 13

ggactagtcc tgatcatcac ttgtcgtcgt cgtcctt

37

**FIG. 2**

gct	ctc	ctg	ctcc	agag	gacc	atg	agg	agg	cgc	ctg	gag	ggg	cca	ggc	ctg	51
						Met	Arg	Ala	Leu	Glu	Gly	Pro	Gly	Leu		
						1					5					
tcg	ctg	ctg	tgc	ctg	gtg	ttg	gcg	ctg	cct	gcc	ctg	ctg	ccg	gtg	ccg	99
Ser	Leu	Leu	Cys	Leu	Val	Leu	Ala	Leu	Pro	Ala	Leu	Leu	Pro	Val	Pro	
10					15					20					25	
gct	gta	cgc	gga	gtg	gca	gaa	aca	ccc	acc	tac	ccc	tgg	cgg	gac	gca	147
Ala	Val	Arg	Gly	Val	Ala	Glu	Thr	Pro	Thr	Tyr	Pro	Trp	Arg	Asp	Ala	
				30					35					40		
gag	aca	ggg	gag	cgg	ctg	gtg	tgc	gcc	cag	tgc	ccc	cca	ggc	acc	ttt	195
Glu	Thr	Gly	Glu	Arg	Leu	Val	Cys	Ala	Gln	Cys	Pro	Pro	Gly	Thr	Phe	
			45					50					55			
gtg	cag	cgg	ccg	tgc	cgc	cga	gac	agc	ccc	acg	acg	tgt	ggc	ccg	tgt	243
Val	Gln	Arg	Pro	Cys	Arg	Arg	Asp	Ser	Pro	Thr	Thr	Cys	Gly	Pro	Cys	
		60					65					70				
cca	ccg	cgc	cac	tac	acg	cag	ttc	tgg	aac	tac	ctg	gag	cgc	tgc	cgc	291
Pro	Pro	Arg	His	Tyr	Thr	Gln	Phe	Trp	Asn	Tyr	Leu	Glu	Arg	Cys	Arg	
	75					80					85					
tac	tgc	aac	gtc	ctc	tgc	ggg	gag	cgt	gag	gag	gag	gca	cgg	gct	tgc	339
Tyr	Cys	Asn	Val	Leu	Cys	Gly	Glu	Arg	Glu	Glu	Glu	Ala	Arg	Ala	Cys	
90					95				100						105	
cac	gcc	acc	cac	aac	cgt	gcc	tgc	cgc	tgc	cgc	acc	ggc	ttc	ttc	gcg	387
His	Ala	Thr	His	Asn	Arg	Ala	Cys	Arg	Cys	Arg	Thr	Gly	Phe	Phe	Ala	
				110					115					120		
cac	gct	ggg	ttc	tgc	ttg	gag	cac	gca	tgc	tgt	cca	cct	ggg	gcc	ggc	435
His	Ala	Gly	Phe	Cys	Leu	Glu	His	Ala	Ser	Cys	Pro	Pro	Gly	Ala	Gly	
			125					130					135			
gtg	att	gcc	ccg	ggc	acc	ccc	agc	cag	aac	acg	cag	tgc	cag	ccg	tgc	483
Val	Ile	Ala	Pro	Gly	Thr	Pro	Ser	Gln	Asn	Thr	Gln	Cys	Gln	Pro	Cys	
		140					145					150				
ccc	cca	ggc	acc	ttc	tca	gcc	agc	agc	tcc	agc	tca	gag	cag	tgc	cag	531
Pro	Pro	Gly	Thr	Phe	Ser	Ala	Ser	Ser	Ser	Ser	Ser	Glu	Gln	Cys	Gln	
	155					160					165					
ccc	cac	cgc	aac	tgc	acg	gcc	ctg	ggc	ctg	gcc	ctc	att	gtg	cca	ggc	579
Pro	His	Arg	Asn	Cys	Thr	Ala	Leu	Gly	Leu	Ala	Leu	Ile	Val	Pro	Gly	
170				175					180						185	
tct	tcc	tcc	cat	gac	acc	ctg	tgc	acc	agc	tgc	act	ggc	ttc	ccc	ctc	627
Ser	Ser	Ser	His	Asp	Thr	Leu	Cys	Thr	Ser	Cys	Thr	Gly	Phe	Pro	Leu	
				190					195							

G1 CONT.

2/2

FIG. 2 (cont'd.)

cag gcc ctc gag gcc ccg gag ggc tgg gct ccg aca cca agg gcg ggc	771
Gln Ala Leu Glu Ala Pro Glu Gly Trp Ala Pro Thr Pro Arg Ala Gly	
235 240 245	
cgc gcg gcc ttg cag ctg aag ctg cgt ccg ccg ctc acg gag ctc ctg	819
Arg Ala Ala Leu Gln Leu Lys Leu Arg Arg Arg Leu Thr Glu Leu Leu	
250 255 260 265	
ggg gcg cag gac ggg gcg ctg ctg gtg ccg ctg ctg cag gcg ctg cgc	867
Gly Ala Gln Asp Gly Ala Leu Leu Val Arg Leu Leu Gln Ala Leu Arg	
270 275 280	
gtg gcc agg atg ccc ggg ctg gag ccg agc gtc cgt gag cgc ttc ctc	915
Val Ala Arg Met Pro Gly Leu Glu Arg Ser Val Arg Glu Arg Phe Leu	
285 290 295	
cct gtg cac tgatcctggc cc	936
Pro Val His	
300	

1/2

FIG. 4

gtg gca gaa aca ccc acc tac ccc tgg cgg gac gca gag aca ggg gag 48  
 Val Ala Glu Thr Pro Thr Tyr Pro Trp Arg Asp Ala Glu Thr Gly Glu  
 1 5 10 15  
 cgg ctg gtg tgc gcc cag tgc ccc cca ggc acc ttt gtg cag cgg ccg 96  
 Arg Leu Val Cys Ala Gln Cys Pro Pro Gly Thr Phe Val Gln Arg Pro  
 20 25 30  
 tgc cgc cga gac agc ccc acg acg tgt ggc ccg tgt cca ccg cgc cac 144  
 Cys Arg Arg Asp Ser Pro Thr Thr Cys Gly Pro Cys Pro Pro Arg His  
 35 40 45  
 tac acg cag ttc tgg aac tac ctg gag cgc tgc cgc tac tgc aac gtc 192  
 Tyr Thr Gln Phe Trp Asn Tyr Leu Glu Arg Cys Arg Tyr Cys Asn Val  
 50 55 60  
 ctc tgc ggg gag cgt gag gag gag gca cgg gct tgc cac gcc acc cac 240  
 Leu Cys Gly Glu Arg Glu Glu Glu Ala Arg Ala Cys His Ala Thr His  
 65 70 75 80  
 aac cgt gcc tgc cgc tgc cgc acc ggc ttc ttc gcg cac gct ggt ttc 288  
 Asn Arg Ala Cys Arg Cys Arg Thr Gly Phe Phe Ala His Ala Gly Phe  
 85 90 95  
 tgc ttg gag cac gca tgc tgt cca cct gct gcc ggc gtg att gcc ccg 336  
 Cys Leu Glu His Ala Ser Cys Pro Pro Gly Ala Gly Val Ile Ala Pro  
 100 105 110  
 ggc acc ccc agc cag aac acg cag tgc cag ccg tgc ccc cca ggc acc 384  
 Gly Thr Pro Ser Gln Asn Thr Gln Cys Gln Pro Cys Pro Pro Gly Thr  
 115 120 125  
 ttc tca gcc agc agc tcc agc tca gag cag tgc cag ccc cac cgc aac 432  
 Phe Ser Ala Ser Ser Ser Ser Ser Glu Gln Cys Gln Pro His Arg Asn  
 130 135 140  
 tgc acg gcc ctg ggc ctg gcc ctc aat gtg cca ggc tct tcc tcc cat 480  
 Cys Thr Ala Leu Gly Leu Ala Leu Asn Val Pro Gly Ser Ser Ser His  
 145 150 155 160  
 gac acc ctg tgc acc agc tgc act ggc ttc ccc ctc agc acc agg gta 528  
 Asp Thr Leu Cys Thr Ser Cys Thr Gly Phe Pro Leu Ser Thr Arg Val  
 165 170 175  
 cca gga gct gag gag tgt gag cgt gcc gtc atc gac ttt gtg gct ttc 576  
 Pro Gly Ala Glu Glu Cys Glu Arg Ala Val Ile Asp Phe Val Ala Phe  
 180 185 190  
 cag gac atc tcc atc aag agg ctg cag cgg ctg ctg cag gcc ctc gag 624  
 Gln Asp Ile Ser Ile Lys Arg Leu Gln Arg Leu Leu Gln Ala Leu Glu  
 195 200 205  
 gcc ccg gag ggc tgg gct ccg aca cca agg gcg ggc cgc gcg gcc ttg 672  
 Ala Pro Glu Gly Trp Ala Pro Thr Pro Arg Ala Gly Arg Ala Ala Leu  
 210 215 220  
 cag ctg aag ctg cgt cgg cgg ctc acg gag ctc ctg ggg gcg cag gac 720  
 Gln Leu Lys Leu Arg Arg Arg Leu Thr Glu Leu Leu Gly Ala Gln Asp  
 225 230 235 240

g	cgg	ctg	ctg	cag	gcg	ctg	cgc	gtg	gcc	agg
l	Arg	Leu	Leu	Gln	Ala	Leu	Arg	Val	Ala	Arg
5					250					25
g	agc	gtc	cgt	gag	cgc	ttc	ctc	cct	gtg	caa
g	Ser	Val	Arg	Glu	Arg	Phe	Leu	Pro	Val	His
				265					270	

ccc ggg ctg gag cgg agc gtc cgt gag cgc ttc ctc cct gtg cac 813  
Pro Gly Leu Glu Arg Ser Val Arg Glu Arg Phe Leu Pro Val His  
260 265 270

tgatcctggc cc 825